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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,968	04/11/2005	Gunther Hraby	S4-02P16362	3180

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EXAMINER	
GUZMAN, APRIL S	
ART UNIT	PAPER NUMBER
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,968	HRABY ET AL.	
	Examiner	Art Unit	
	April S. Guzman	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/11/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Examiner acknowledges the receipt of the Applicant's amendment filed January 24, 2007. The amendments to the drawings have been acknowledged. The amendments to the specification has been acknowledged. Claims 11-21 currently remain pending in the application.

Response to Arguments

Applicant's arguments filed January 24, 2007 have been fully considered but they are not persuasive.

Applicant essentially argues that no signal is coupled out of the wheel well 28 for further analysis as occurs in the invention of the instant application. The wheel well merely functions as a ground connection and not a data bus. The Applicant also argues that there is no electrical conductor disposed between the antennas in Bankart et al.

The Examiner respectfully disagrees with Applicant's arguments because Bankart et al. teach relay module 4 which is coupled relatively to the sensor module by the antennae 2 and 3 serves to drive the load circuitry in sensor module and to detect the variation in loading and converting this variation into a signal suitable for use by the display module 5. The relay module can be mounted either on the axle, close to or as a part of the fixed antenna 3 (column 5 lines 25-32). Capacitive coupling is achieved simply by the use of conducting plate antennae separated by an air gap. The electrical potential on one plate produces a localized electric field that induces a potential on the other (column 7 lines 30-46). It is inherent that the vehicle in Bankart et al. also has a vehicle body of metal that is electrically conducting, therefore, the capacitive

coupling of the conducting plate antennae separated by an air gap can also be coupled through the vehicle body of Bankart et al. The sensor module 1 has a metal casing which provides its earth connection directly to the wheel well 28. The earth connection for the sensor module 1 (return path) is implemented through the wheel bearing. Although this is unreliable as an ohmic connection alone, it will operate satisfactory as a capacitive connection in parallel with an ohmic connection at the frequencies proposed. The antennae surfaces will be self-draining (column 12 lines 34-54). Bankart et al. also discloses a tire pressure measuring apparatus, adapted to be carried by a vehicle, including signal transmission apparatus provided with the sensor, the transmitter circuitry being adapted to be carried by one of the vehicle wheels and the receiver circuitry being adapted to be carried by a chassis of the vehicle, and the one or more predetermined parameters sensed by the sensor means including a tire pressure of the one wheel (column 34 lines 26-34). The chassis of the vehicle being of metal is electrically conducting and therefore can be read as the electrically conducting conductor element that serves as a data bus wherein the electric field between the two antenna plates are coupled through the chassis of the vehicle.

Consequently, in view of the above teachings of Bankart et al. and having addressed Applicant's arguments, the previous rejection to claim 11 is maintained and made Final by the Examiner.

Regarding the rejection of claim 21 under 35 U.S.C. 103, the Applicant's arguments are not persuasive in view of the sustained rejection of independent claim 11 explained above. The Examiner also maintains that the obviousness rejection of claim 21 is proper.

Consequently, in view of the above teachings of Bankart et al. and having addressed Applicant's arguments regarding claim 11, the previous rejections made to claim 19 and 20 are maintained and made Final by the Examiner. The rejections made to the dependent claims are also maintained for the reason that they all are ultimately dependent on claim 11.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claim 11-20** are rejected under 35 U.S.C. 102(b) as being anticipated by **Bankart et al (U.S. Patent # 6,609,419)**.

Consider **claim 11**, Bankart et al. shows and discloses an information transmission system (a signal transmission apparatus for use in a passive sensor system such as an in-vehicle tyre pressure sensing system) (Abstract, Figure 1, column 3 lines 24-37, and column 3 lines 44-65), comprising:

a transmitter (transmitter circuitry) having at least one transmitter coupling element for emitting primarily an electric near field (sensor module 1 and the wheel antenna 2. The sensor module 1 is arranged in the well of the wheel rim and contains sensors that respond to pressure and temperature, as well as circuitry for producing one or more signals whose frequency is a function of pressure and temperature.) (Abstract, Figure 1, Figure 6, Figure 9, column 5 lines 3-13 and column 5 lines 14-24);

an infrastructure body (wheel rims, wheel axle and body of vehicle are of metal and are electrically conducting) (Abstract, Figure 6, column 3 lines 57-65, column 5 lines 3-31) having an electrically conducting conductor element electrically insulated from ground, wherein the electric field is coupled into said conductor element (Sensor module 1 has a metal casing which provides its earth connection directly to the wheel well 28. The earth connection for the sensor module 1 is implemented through the wheel bearing. Substantially all external surfaces of the pressure sensor are made of conductive material. Non-contact coupling method or capacitive coupling can be used to transmit power in one direction and receive a signal in the other direction. Conducting plate antennae separated by an air gap is used. The electric potential on one plate produces a localized electric field that induces a potential on the other.) (Figure 6, column 7 lines 30-45, column 12 lines 34-39, and column 35 lines 25-26); and

a receiver (receiver circuitry) having a receiver coupling element for coupling out the electric field transmitted in said conductor element (Relay module 4 is coupled reactively to the sensor module by the antennae 2 and 3 which serves to drive the load circuitry in sensor module and to detect the variation in loading and convert this variation into a signal suitable for use by the display module. Relay module 4 can be mounted on the axle, close to or as part of the fixed antennae 3.) (Abstract, Figure 1, Figure 6, Figure 10, column 5 lines 3-13, and column 5 lines 25-32).

Consider **claim 12, as applied to claim 11 above**, Bankart et al. disclose said conductor element is connected for directly coupling the electric field into said conductor element (Non-contact coupling method, capacitive coupling, can be used to transmit power in one direction and receive a signal in the other direction. Conducting plate antennae separated by an air gap is used.

The electric potential on one plate produces a localized electric field that induces a potential on the other.) (column 7 lines 30-46).

Consider **claim 13, as applied to claim 11 above**, Bankart et al. disclose said conductor element is disposed for coupling the electric field into said conductor element by capacitive coupling (Non-contact coupling method, capacitive coupling, can be used to transmit power in one direction and receive a signal in the other direction. Conducting plate antennae separated by an air gap is used. The electric potential on one plate produces a localized electric field that induces a potential on the other.) (column 7 lines 30-46).

Consider **claim 14, as applied to claim 11 above**, Bankart et al. show and disclose said conductor element is made of a substantially homogeneous material (Substantially all external surfaces of the pressure sensor are made of metal or conductive material.) (Figure 9, column 17 lines 31-49, and column 35 lines 25-26), and an electrical conductivity of said conductor element is time-invariant (The sensor module has only one item of data to transmit to the relay module. If transmission of more than one item of data is required, time-division-multiplexing can be used.) (Figure 7, column 6 lines 15-27, column 6 lines 56-60, and column 25 lines 35-39).

Consider **claim 15, as applied to claim 11 above**, Bankart et al. show and disclose said conductor element has an electrical impedance with respect to ground potential (The fixed antenna 3 and relay module 4 are carried by the body of the vehicle. The relay module 4 contains driver circuitry to provide a high-frequency voltage and current to fixed antenna 3 via a source impedance. As seen in Figure 10, which shows a block circuit diagram of the relay module 4, the source impedance is connected to ground.) (Figure 10, column 5 lines 3-13, column 5 lines 25-37, and column 8 lines 22-36).

Consider **claim 16, as applied to claim 11 above**, Bankart et al. show and disclose said conductor element is an unbalanced conductor element configured to utilize ground potential as a return line for transmission of information (Capacitive coupling is the preferred coupling method which is achieved by the use of conducting plate antennae separated by an air gap. The electric potential on one plate produces a localized electric field that induces a potential on the other. Figure 5 is a representation of the coupling between the relay module and the sensor module. The earth connection for the sensor module 1 (return path) is implemented through the wheel bearing.) (Figure 5, Figure 6, column 7 lines 30-46, column 11 lines 11-29, and column 12 lines 37-39).

Consider **claim 17, as applied to claim 17 above**, Bankart et al. show and disclose the electric field is modulated with information to be transmitted (The modulator 182 includes and analog multiplier which modulates the amplitude of the excitation signal produced by the excitation oscillator in accordance with a signal DATA IN which is desired to transmit to the load.) (Figure 18, and column 27 lines 50-61).

Consider **claim 18, as applied to claim 17 above**, Bankart et al. disclose a carrier frequency lies approximately between 5 MHz and 50 MHz (The sensor module specification requires less than 100 μW at 2.5 volts. If this power is provided an excitation voltage of 1.75 V and a resonator frequency of 11 MHz, giving and excitation frequency of approximately 10 MHz, a minimum coupling capacitance of 4 pF is required.) (column 10 lines 54-59).

Consider **claim 19**, Bankart et al. show and disclose a transmitter for transmitting information, comprising a power supply, a modulator, and a coupling element for coupling information to be transmitted into an electrical conductor element by way of an essentially

electric near field (The transmitter circuitry may comprise a modulator connected with the resonator and operable to change the effective value in dependence upon a control signal or operable to cause the effective value to change in dependence upon each one in turn of a plurality of control signals on a predetermined time-division-multiplexing basis. The modulator 182 in Figure 18 includes an analog multiplier which modulates the amplitude of the excitation signal produced by the excitation oscillator in accordance with a signal DATA IN which it is desired to transmit to the load. Transmitter circuitry includes a power supply deriving circuit connected to said resonator for deriving a power supply needed for powering at least part of the transmitter circuitry from the excitation signal transmitted to the resonator by said receiver circuitry.) (Figure 18, column 27 lines 50-61, column 33 lines 51-56, and column 36 lines 18-23).

Consider **claim 20**, Bankart et al. show and disclose a receiver for receiving information, comprising a power supply, a demodulator, and at least one coupling element for coupling out of a conductor element information transmitted via the electrical conductor element by way of a primarily electric near field (Receiver circuitry comprises a demodulator which demodulates a sensing signal, derived from the resonator in the transmitter circuitry, with further signal so as to tend to cancel out from the sensing signal variations arising from the amplitude modulation of the excitation signal, the demodulated sensing signal being used to detect the change in the effective value. Excitation unit is included in said receiver circuitry and said excitation signal is coupled to said resonator by mean so capacitive coupling wherein coupling comprises a first antenna coupled to resonator and a second antenna opposed to said first antenna and coupled to said receiver circuitry. Each of said first and second antennas comprising a conducting surface.)

(column 34 lines 13-25, column 36 lines 14-17, column 36 lines 24-25, and column 36 lines 32-37).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bankart et al. (U.S. Patent # 6,609,419)** as applied to claim 11 above, in view of **Bankart et al.'s admission of prior art**.

Consider **claim 21, as applied to claim 11 above**, Bankart et al. disclose a tire pressure measuring system of a motor vehicle wherein said conductor element is a part of the bodywork of the motor vehicle, a transmitter, and an associated receiver is disposed on the vehicle in a vicinity of the conductor element (Signal transmission apparatus for use in a passive sensor system such as an in-vehicle tyre pressure sensing system. The tyre pressure measuring apparatus adapted to be carried by a vehicle, including signal transmission apparatus provided with the sensor, the transmitter circuitry being adapted to be carried by one of the vehicle wheels and the receiver circuitry being adapted to be carried by a chassis of the vehicle, and the one or more predetermined parameters sensed by the sensor means including a tyre pressure of the one wheel.) (Abstract, and column 34 lines 26-34).

However, Bankart et al. fail to show or disclose that each tire of the motor vehicle has a transmitter disposed therein.

In the related art, Bankart et al.'s admission of prior art discloses in one commercially available tyre pressure measurement system, a battery, sensors and a radio transmitter are provided within each tyre on the vehicle, and the vehicle carries a central radio receiving station to interpret and display the data (column 1 lines 44-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a transmitter in each tire of the motor vehicle for the purpose

of transmitting data for each tire to the central receiving station where it is interpreted for display.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see PTO-892 Notice of Reference Cited).

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to April S. Guzman whose telephone number is 571-270-1101. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April S. Guzman
A.S.G/asg

03/29/04

MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER